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**Wall construction system**

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## ABSTRACT

- 5 A wall construction system comprising a support provided with means for attachment to a building frame, which is configured to allow rendering material to be retained thereon.



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Invention Title: Wall construction system

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PP8734

The following statement is a full description of this invention, including the best method of performing it known to me:

## WALL CONSTRUCTION SYSTEM

### FIELD OF THE INVENTION

5 The present invention relates to a wall construction system and in particular, but not exclusively, to a wall construction system which comprises a support provided with means for attachment to a building frame, which is configured to allow rendering material to be retained thereon.

### 10 BACKGROUND OF THE INVENTION

The present invention relates to an improvement in building techniques which is applicable to buildings constructed using framework. Many conventional buildings and especially residential and light commercial premises are constructed by erecting a framework  
15 construction which is anchored to the ground by foundations. As is well understood in the art the frame sections constitute a series of studs, beams, lintels and the like which provide support for other elements of the construction. It is standard practice for a weatherproof material to then either be applied to, or erected adjacent, the exterior of the frame. Such weatherproof materials may take the form of bricks and mortar, concrete blocks, timber  
20 boards or sheeting materials such as fibrocement, aluminium or the like. It is then usual to affix panelling, such as for example plasterboard or other sheet material which can be decorated as desired, to the interior. The frame itself may conveniently be constructed from timber, reinforced concrete, steel or the like.

25 Certain problems are associated with building construction systems known to date. In particular, it is recognised that systems which provide the best durability, weather resistance, insulation and strength, such as for example the building of an outer brick veneer wall adjacent to the exterior of the frame are expensive and involve a labour intensive construction process. In contrast, the use of exterior materials such as timber, fibrocement or other forms  
30 of cladding generally do not adequately insulate from heat and/or sound, are not particularly

strong and may not provide suitable levels of fire resistance and durability. It is with this background in mind that the present invention has been conceived.

It is an object of the present invention to provide an alternative wall construction system.

5 Other objects of the present invention will become apparent from the following detailed description thereof.

### SUMMARY OF THE INVENTION

10 According to one embodiment of the present invention there is provided a wall construction system comprising a support provided with attachment means for fixing to a building frame, the support being configured so as to allow a rendering material to be retained thereon.

According to another embodiment of the present invention there is provided a wall  
15 construction system as outlined above wherein the support is configured to define internal and external boundaries interrupted by a plurality of recesses each having substantially consistent cross sectional profile.

According to a further aspect of the invention the recesses have a trapezium shaped cross  
20 sectional profile with sides extending laterally from a recess opening.

According to another aspect of the present invention there is provided a method of wall construction comprising fixing to a building frame a wall construction system as outlined above and then applying rendering material to an external side thereof.

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### BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a diagrammatic side view of a wall construction system according to the invention when fixed to a building frame.

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## DETAILED DESCRIPTION OF THE INVENTION

Throughout this specification and the claims which follow, unless the context requires otherwise, the word "comprise", and variations such as "comprises" and "comprising", will  
5 be understood to imply the inclusion of a stated integer or step or group of integers or steps but not the exclusion of any other integer or step or group of integers or steps.

As outlined above the wall construction system according to the invention comprises a support which is provided with attachment means on one side thereof for fixing to a building  
10 frame. An example of the wall construction system 1 is shown in Fig. 1, which is affixed to a building frame 2. The wall construction system 1 shown in the figure comprises a support 3 which is fixed to the building frame 2 by virtue of attachment means 4, in this case  
15 screws which penetrate through holes in the support on its internal boundary 5. It is possible to adopt any conventional attachment means, such as for example the use of screws, bolts, nails, fastening clips, adhesive or the like. Rendering material 6 is retained on the external  
boundary 7 of the support 3 and within the recesses (external recesses 8) on the external side  
9.

The terms "internal" and "external" are intended to define sides of the support 3 relative to  
20 the building frame 2, so that the side of the support 3 located closest to the frame (which is internal to the wall) is referred to as the internal side, and the side which is external to the wall is referred to as the external side. By the use of this terminology it will be understood that although the external side 9 is external to the wall structure, it may in fact be located on  
the interior of the building under construction. Most preferably, however, the wall  
25 construction system will be located on the exterior of the frame and therefore on the exterior of the building construction.

By the terms internal boundary 5 and external boundary 7 it is intended to convey the internal and external limits of the support 3, respectively. These limits or boundaries may, in one  
30 embodiment of the invention, be defined by a surface of the support, which is preferably

planar but which may also be curved and which is interrupted by a plurality of recesses.

In a preferred embodiment of the invention unitary support panels are formed from a single piece of sheet like material which is bent, pressed or moulded into the appropriate configuration. In constructing a wall using the novel wall construction system it is possible for numerous support panels to be fitted together to form a complete wall surface, preferably by overlapping support panels at their edges and then fixing to the building framework by appropriate attachment means.

- 10 Preferably, the recesses on the internal and external sides of the support will be substantially consistent in their cross sectional profile so that each support panel has a consistently patterned configuration with recesses of the same shape on either side. In a preferred, although not essential embodiment of the invention, as shown in Fig. 1, both the external recesses 8 and internal recesses 10 have a trapezium shaped cross sectional profile with the sides extending laterally from each recess opening 11. This configuration has been found to be particularly advantageous as it allows both easy fastening of the support 3 to the building frame 2 and enables the rendering material to readily be retained. The rendering material utilised in the present invention may constitute any conventional rendering material available in the building industry such as concrete or plaster based materials or acrylic materials.
- 20 Preferably the rendering material is applied in a tacky but flowable form. In one preferred embodiment the rendering material is applied by utilising conventional pumping equipment to expel the rendering material under pressure through a nozzle and then onto a surface of the support, at the same time substantially filling the recesses on that side of the support, through the recess openings. While it is still flowable the rendering material can then be finished to create a smooth or textured surface, as desired. Standard rendering materials which can be utilised may be coloured upon application or can subsequently have a further veneer, colour or other coating applied thereto. It is of course possible for the rendering material to be applied by hand, in the well known manner.

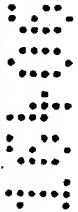
Preferably the wall construction system is utilised so that the recesses run substantially horizontally when the wall construction system is fixed to a building frame. This arrangement is best suited to retaining in place the rendering material which is applied to a side of the support. Alternatively, however, it is possible for the wall construction system  
5 to be arranged so that the recesses are located substantially vertically when fixed to a building frame. This arrangement is particularly suited for application to curved walls as the support material may be able to be bent in this direction.

Preferably the support is produced from metal, such as for example galvanised iron or  
10 aluminium, which have the advantage of corrosion resistance. It is also possible, however, for the support to be produced from rigid plastics material such as for example polyvinyl chloride (PVC) or other rigid plastics materials.

Some particular advantages of the wall construction system according to the present invention  
15 are that it allows for the production of strong but relatively low cost building structures. The trapezium shaped cross sectional profile of the recesses, according to one embodiment of the invention, conveniently allows the rendering material, once set, to be locked in place about the surface of the support. The presence of recesses on the internal side of the support allows the possibility that services such as electricity, water, gas and the like can easily be located  
20 within the wall construction and that the wall can readily be equipped within the recesses with materials such as heat and/or sound insulation, fire retardant or even a further layer of rendering material which may be utilised to increase the strength of the wall construction, particularly for load bearing applications. Furthermore, by virtue of the configuration of the wall construction system it is possible to obtain a wall construction which does not have joins  
25 on its external surface and which is particularly suited to withstanding expansion or contraction which results for example from temperature change or ground shift.



It is to be recognised that the present invention has been described by way of example only and that modifications and/or alterations thereto, which would be apparent to a person skilled in the art based upon the disclosure herein, are also considered to fall within the scope and spirit of the invention as defined in the appended claims.



THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A wall construction system comprising a support provided with attachment means for fixing to a building frame, the support being configured so as to allow a rendering material  
5 to be retained thereon.
2. The wall construction system according to claim 1 wherein the support is configured to define internal and external boundaries interrupted by a plurality of recesses each having substantially consistent cross sectional profile.
- 10 3. The wall construction system according to claim 1 wherein the recesses have a trapezium shaped cross sectional profile with sides extending laterally from a recess opening.
4. The wall construction system according to either claim 2 or claim 3 wherein internal  
15 and external boundaries are substantially planar.
5. The wall construction system according to either claim 2 or claim 3 wherein internal and external boundaries are curved.
- 20 6. The wall construction system according to any one of claims 2 to 6 wherein the attachment means is located on the internal boundary.
7. The wall construction system according to any one of claims 2 to 6 with rendering material applied to the external boundary and within recesses on an external side.
- 25 8. The wall construction system according to claim 7 which is fixed to a wall frame via attachment means located on the internal boundary.
9. The wall construction system according to any one of claims 1 to 8 wherein the  
30 support is produced from metal or rigid plastics material.

10. The wall construction system according to claim 9 wherein the metal is aluminium or galvanised iron.

11. The wall construction system according to any one of claims 1 to 10 wherein the rendering material is concrete based, plaster based or acrylic rendering material.

12. The wall construction system according to any one of claims 1 to 11 wherein the attachment means comprises holes within the support on the internal boundary thereof adapted to receive bolts, nails, screws or the like.

10

13. A method of wall construction comprising fixing to a building frame a wall construction system as defined within any one of claims 1 to 6 and then applying rendering material to an external side thereof.

15 14. A wall construction system substantially as hereinbefore described with reference to the drawing.

DATED this 12th day of February, 2000

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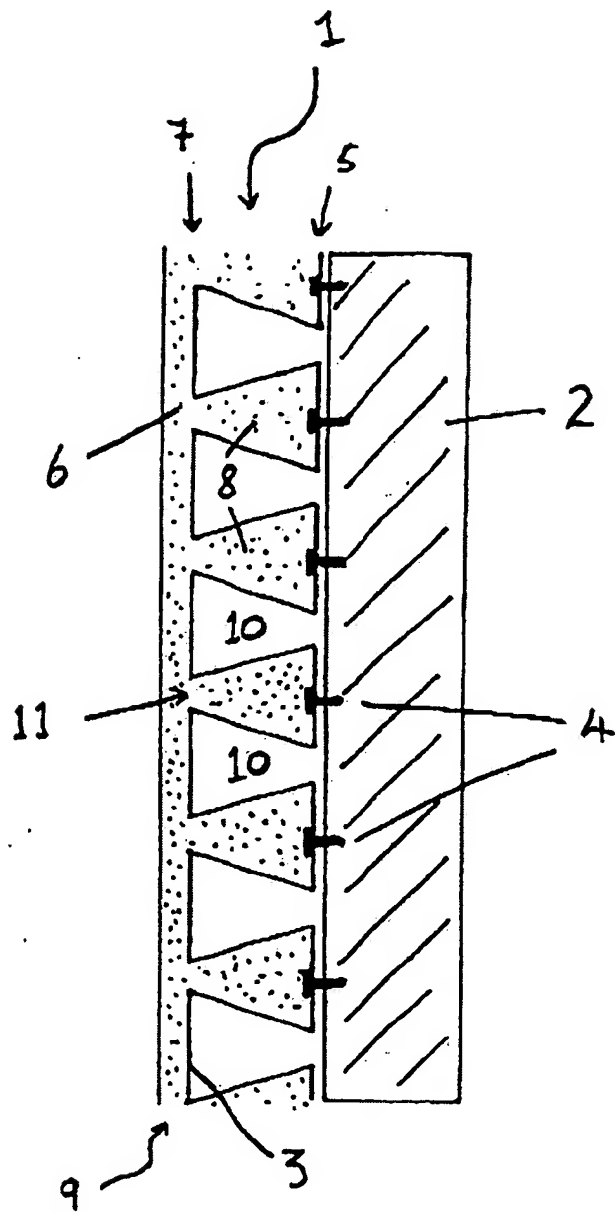


FIG 1